

REMARKS

Original claims 1 – 20 are pending, no claims have been amended.

Claims 21 - 24 have been added to more clearly define the invention. It is respectfully submitted that new claims 21 – 24 are fully supported by the specification as originally filed, are directed to the same invention and do not introduced new matter. Entry of the new claims into the record and consideration is respectfully requested.

It is submitted, for the reasons set forth below, that the claims should be allowed and the application passed to issue.

I. Rejections under 35 U.S.C. § 102(e)

Claims 1, 2, 6 -12, and 14 - 19 stand *rejected under 35 U.S.C. § 102(b) as being anticipated by Gilbert U.S. patent No. US 66172549* (sic - 6172549) issued to Gilbert (herein “Gilbert”).

Those rejections are traversed.

As to claim 1, the rejection under 35 U.S.C. § 102(b) of claim 1 as being anticipated by Gilbert is traversed on the grounds that Gilbert does not teach, suggest or render obvious all the limitations of claim 1.

For example, claim 1 recites, in part “A method for improving an input match in a circuit comprising: ... operating an impedance compensating circuit for changing a compensating impedance presented at the input signal port, ...” . The Examiner wrote “... Regarding to claim 1, Fig. 3 Gilbert disclose a method for improving an input match in a circuit comprising: ... and operating an impedance compensating circuit (Q1, Q2)

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for changing a compensating impedance presented at the input signal port (Col. 7 lines 10-13) ... ”.

It is respectfully submitted that Gilbert teaches at Col. 7 lines 10-13 a circuit for adjusting an input impedance but not for changing a compensating impedance as recited in the claim.

As a further example, claim 1 further recites, in part “... wherein the impedance compensating circuit is controlled by the level setting gain control and wherein the impedance compensating circuit is operable to counteract changes in the input signal impedance correlated with changes in the stage gain ...”. The Examiner wrote “*Regarding to claim 1, Fig. 3 Gilbert disclose a method for improving an input match in a circuit comprising: ... wherein the impedance compensating circuit is controlled by the level setting gain control voltage (V_{bias}) and wherein the impedance compensating circuit is operable to counteract changes in the input signal impedance correlated with changes in the stage gain (Fig. 3 (16), also see Fig. 11 Col. 10 lines 59 —65).*”

As to Gilbert’s circuit of Fig.3, it is respectfully submitted that Gilbert uses a bias current to provide a standardized input impedance and not to counteract changes in the input signal impedance correlated with changes in the stage gain as recited in claim 1. Indeed if one reads on in Gilbert (Col. 7 lines 16-21) it becomes apparent that Gilbert is compensating to sustain the square law relationship he desires and for temperature dependent impedance (PTAT circuit). But Gilbert’s impedance compensation is not correlated with stage-gain nor does it compensate for correlated stage-gain dependent impedance. Since Gilbert’s design is addressed to the instrumentation arts rather than the power amplifier arts it is unremarkable that he has the luxury of tolerating low energy efficiency. Therefore Gilbert is able to simply swamp (as opposed to compensate for) gain dependent variable (but relatively high) impedance at the control terminal of the active device (Fig.3 base of Q3) with two low impedances, each in parallel (current terminals of

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Q1 and Q2). This can be understood by considering that, in Gilbert's circuit of Fig. 3, the input impedance into the base of Q3 is given (using conventional symbols) as:

$\beta V_T / i_e$ that is on the order of 1000 Ohms. In contrast, the current terminals of Q1 and Q2 in parallel will have an impedance roughly matched to the input signal, that is on the order of 50 Ohms.

Thus Gilbert is able to **avoid the need for compensation** for stage-gain dependent input impedance rather than to **actually provide compensation** that is stage-gain-correlated as claimed. Thus, not only does Gilbert fail to disclose all the elements of claim 1 but he does not disclose or suggest the invention itself.

The Examiner further wrote, in the same context, "*.. also see Fig. 11 Col. 10 lines 59 – 65 [of Gilbert] ...*". As to Gilbert's circuit of Fig. 11, it is respectfully submitted that Gilbert Col. 10 lines 59-65 makes it plain the Gilbert is again compensating for impedance dependent on temperature, not impedance correlated with stage-gain as recited in claim 1.

Thus, for at least the reasons stated above a *prima facie* case for anticipation of claim 1 has not been made and allowance of claim 1 under 35 U.S.C. § 102(b) is respectfully requested.

As regards claims 2, 6 and 7, they are dependent on claim 1 and so are allowable for at least the same reasons as claim 1, therefore allowance of claims 2, 6 and 7 is respectfully requested.

As to independent claims 8 and 16, the rejection under 35 U.S.C. § 102(b) of claims 8 and 16 as being anticipated by Gilbert is traversed on the grounds that Gilbert does not teach, suggest or render obvious all the limitations of claims 8 and 16.

Claims 8 and 16 are apparatus claims each to an apparatus intended to substantially implement the method of claim 1 but with the control signal of claims 8 and 16

performing a similar function to the level setting gain control voltage of claim 1. Therefore it is respectfully submitted that claims 8 and 16 are allowable under 35 U.S.C. § 102(b) for the same reasons as claim 1.

Moreover, the examiner wrote "*Regarding to claims 8, and 16, Fig. 3 of Gilbert disclose ... a gain controller (V_{bias}) operable to adjust a gain of the cascode (sic – cascode) in response to a control signal (22); ...*". But the circuit of Gilbert's Fig. 3 has no gain controller at all, still less is Gilbert's V_{bias} a gain controller or associated with a gain controller.

The examiner further wrote "*Regarding to claims 8, and 16, Fig. 3 of Gilbert disclose ... in response to a control signal (22); ... and an impedance controller (QI , 02) operable to adjust an input impedance (V_{in} , lin) of the cascode with a loading impedance (Fig. 3, Col. 7 lines 10 12) in response to the control signal V_{bias}); ...*". But as to the circuit of Gilbert's Fig. 3, the examiner already identified V_{IN} (22) as the control signal and then asserts that V_{bias} is also the control signal. It is a feature of embodiments of the invention as defined in claims 8 and 16 that a single control signal controls both stage gain and impedance compensation.

Therefore it is respectfully submitted that there has been no *prima facie* showing that Gilbert teaches, suggests or renders obvious all the limitations of claims 8 and 16, and allowance of claims 8 and 16 under 35 U.S.C. § 102(b) is respectfully requested.

As regards claims 9 – 12, 14 and 15, they are dependent on claim 8 and so are allowable for at least the same reasons as claim 8, therefore allowance of claims 9 – 12, 14 and 15 is respectfully requested.

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As regards claims 17 - 19, they are dependent on claim 16 and so are allowable for at least the same reasons as claim 8, therefore allowance of claims 17 – 19 is respectfully requested.

II. Rejections under 35 U.S.C. § 103(a)

Claims 3 and 4 stand rejected under 35 U.S.C. 103(a) as being unpatentable over (sic, rendered obvious by) Fujioka et al. This is taken to mean US Patent 6,492,872 issued to Fujioka et al. and cited by the examiner in a prior paper.

It is respectfully submitted that Fujioka et al. teaches cascade circuits, not cascode circuits and that cascade circuits do not render cascode circuits obvious. The examiner has also referenced Fig. 11 of Fujioka which can be seen not to incorporate any cascodes. Thus no *prima facie* showing of obviousness has been made and it is respectfully submitted claim 3 and 4 should be allowed under 35 U.S.C. § 103(a).

Also, claims 5, 13 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert.

It is respectfully submitted that claim 5 is dependent on claim 1, claim 13 is dependent on claim 8 and claim 20 is dependent on claim 16, therefore claims 5, 13 and 20 are allowable for at least the same reasons as claims 8, 16 and 20 respectively and allowance of claims 5, 13 and 20 is respectfully requested.

III. New claims 21 – 24

New claims 21 - 24 have been added to more clearly define the invention.

Claim 21 is directly dependent upon claim 1 and claims 22 – 24 depend upon claim 21. Therefore claims 21 – 24 are allowable for at least the same reasons as claim 1. Claim 21 and its dependent claims expressly call out the concept, that the stage gain is not merely capable of being controlled by the level setting gain control voltage but, in at least some embodiments, may be adjusted by changing the same during operation.

SUMMARY

Claims 1-20 were pending at last examination. Claims 1-20 were rejected. Claims 21- 24 are new.

It is respectfully requested that the Examiner reconsider and allow the rejected claims for the reasons stated and pass this case to issue with all of pending claims 1 - 24 allowed.

The examiner is invited to call the undersigned at (650) 726 3841 if desired to help advance prosecution.

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Respectfully submitted,

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